

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of :  
 Ryuhei TSUJI : Attn: BOX PCT  
 Serial No. NEW : Docket No. 2002\_0289A  
 Filed February 27, 2002 :

A LIGHTING APPARATUS, A COMMUNICATION  
 METHOD, A DISPLAY UNIT, A COMMUNICATION  
 CIRCUIT AND A TERMINAL ADAPTOR  
 [Corresponding to PCT/JP01/05686  
 Filed June 29, 2001]

THE COMMISSIONER IS AUTHORIZED  
 TO CHARGE ANY DEFICIENCY IN THE  
 FEES FOR THIS PAPER TO DEPOSIT  
 ACCOUNT NO. 23-0975

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents,  
 Washington, DC 20231

Sir:

Prior to initial examination of the above-identified application, kindly amend  
 the application as follows:

IN THE CLAIMS:

Kindly amend the following claims:

5.(Amended) The lighting apparatus according to claim 1, wherein  
 communication at the upper communication line employs higher speed  
 communication than communication at the lower communication line.



14.(Amended) A terminal adaptor having the communication circuit **recited in claim 10**, wherein the communication circuit is capable to communicate with other terminal adaptors connected serially, the terminal adaptor further comprising:

a memory storing communication data received by the communication circuit;

and

a communication section transferring the communication data stored in the memory to other terminals.

**Kindly add the following new claims:**

15.(NEW) The lighting apparatus **according to claim 2**, wherein communication at the upper communication line employs higher speed communication than communication at the lower communication line.

16.(NEW) The lighting apparatus **according to claim 3**, wherein communication at the upper communication line employs higher speed communication than communication at the lower communication line.

17.(NEW) The lighting apparatus **according to claim 4**, wherein communication at the upper communication line employs higher speed communication than communication at the lower communication line.

18.(NEW) The display unit **according to claim 8**, wherein the memory has two or more image data memory areas storing the display data per frame, and during the display section displays image based on the display data

stored in one of the image data memory areas, the display section stores the display data received by the communication section at other image data memory areas.

19.(NEW) The communication circuit **according to claim 11**, wherein  
the first receiving section and the second receiving section convert inputted serial communication data into parallel communication data and receive it; and  
the first transmitting section and the second transmitting section convert inputted parallel communication data into serial communication data and transfer it.

20.(NEW) A display unit having the communication circuit **recited in claim 11**, further comprising:

- a display section constituted by at least one light emitting elements;
- a communication circuit communicating display data;
- a memory storing the display data for at least one frame based on the display data received by the communication circuit; and
- a driving section driving each of the light emitting elements in the display section.

21.(NEW) A display unit having the communication circuit **recited in claim 12**, further comprising:

- a display section constituted by at least one light emitting elements;
- a communication circuit communicating display data;
- a memory storing the display data for at least one frame based on the display data received by the communication circuit; and
- a driving section driving each of the light emitting elements in the display section.

22.(NEW) A terminal adaptor having the communication circuit **recited in claim 11**, wherein the communication circuit is capable to communicate with other terminal adaptors connected serially, the terminal adaptor further comprising:

a memory storing communication data received by the communication circuit;

and

a communication section transferring the communication data stored in the memory to other terminals.

23.(NEW) A terminal adaptor having the communication circuit **recited in claim 12**, wherein the communication circuit is capable to communicate with other terminal adaptors connected serially, the terminal adaptor further comprising:

a memory storing communication data received by the communication circuit;

and

a communication section transferring the communication data stored in the memory to other terminals.

**REMARKS**

The present Preliminary Amendment is submitted to delete the multiple dependencies of claims 5, 9 and 12-14, and to add new claims 15-23, thereby placing such claims in condition for examination and reducing the required PTO filing fee.

Copies of the amended portion of the claims with changes marked therein is attached and entitled "Version with Markings to Show Changes Made."

Respectfully submitted,

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February 27, 2002

circuitry in the display unit precedently; and

the control unit transfers communication packet and controls the display units by accessing to predetermined memory area of the display unit allocated precedently.

5 4. A lighting apparatus comprising:

a control unit providing display data packet to a plurality of display units;

at least one terminal adaptors assigned terminal adaptor ID and having a terminal adaptor side communication section connected with the control unit electrically via upper communication line; and

10 the display units assigned display unit ID, having a display unit side communication section connected with the terminal adaptor electrically via lower communication line, and driving at least one of the disposed light emitting elements based on the display data packets provided by the control unit;

wherein the terminal adaptors and/or the display units are arranged in n  
15 rows (n is two or more integer), each of the communication sections being connected each other serially at each of the rows;

the communication section of the terminal adaptors and/or the display units are connected which is arranged at end position of the lowest stream viewed from the control unit in m-th row (m is integer, which is  $1 \leq m \leq n-1$ ) with  
20 which is arranged in (m+1)-th row at end position on same side as the communication section of the terminal adaptors and/or the display units is located in m-th row.

(Amended)

5. The lighting apparatus according to claims 1-4, wherein

25 communication at the upper communication line employs higher speed communication than communication at the lower communication line.

6. A communication method using display data packets in a lighting apparatus which comprises:

30 a control unit providing display data packets to a plurality of display units,  
at least one terminal adaptors assigned terminal adaptor ID and connected with the control unit electrically via upper communication line;

(Amended)

9. The display unit according to claim 7~~8~~, wherein

the memory has two or more image data memory areas storing the display data per frame, and during the display section displays image based on the display data stored in one of the image data memory areas, the display  
5 section stores the display data received by the communication section at other image data memory areas.

10. A communication circuit comprising:

a first communication section having a first transmitting section and a  
10 first receiving section;

a second communication section having a second transmitting section and a second receiving section;

a communication control section controlling communication at the first communication section and the second communication section;

15 receiving processing section performing receiving process based on received communication data;

wherein the first communication section and the second communication section distinguishes predetermined communication data; and

in case either the first communication section or the second  
20 communication section receives the predetermined communication data alternatively, the communication control section controls to input the communication data received by the communication sections receiving the predetermined communication data into the receiving processing section, and to input the communication data into other communication sections so as to input  
25 communication data received by other communication sections into the transmitting section of the communication sections receiving the predetermined communication data without inputting it into the receiving processing section.

11. The communication circuit according to claim 10, further comprising:

30 a response processing section which performs transferring process of the communication data;

a first selector connecting either the second receiving section or the



response processing section with the first transmitting section alternatively;

a second selector connecting either the first receiving section or the response processing section with the second transmitting section alternatively;

a third selector connecting either the first receiving section or the second  
5 receiving section with the receiving processing section alternatively; and

wherein the communication control section controls the first selector and the second selector to input the communication data received by one communication section receiving the predetermined communication data into the receiving process section and to input it into the transmitting section of other  
10 communication section, and controls the third selector to input the communication data received by the other communication section into the transmitting section of the communication section receiving the predetermined communication data without inputting the communication data into the receiving processing section, based on signal which states the predetermined  
15 communication data is received from either the first communication section or the second communication section.

(Amended)  
12. The communication circuit according to claims ~~10-11~~, wherein

the first receiving section and the second receiving section convert  
20 inputted serial communication data into parallel communication data and receive it; and

the first transmitting section and the second transmitting section convert inputted parallel communication data into serial communication data and transfer it.

25 (Amended)  
13. A display unit having the communication circuit recited in claims ~~10-12~~, further comprising:

a display section constituted by at least one light emitting elements;  
a communication circuit communicating display data;  
30 a memory storing the display data for at least one frame based on the display data received by the communication circuit; and  
a driving section driving each of the light emitting elements in the display

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section.

- (Amended)
14. A terminal adaptor having the communication circuit recited in claims ~~10-12~~,  
wherein the communication circuit is capable to communicate with other terminal  
5 adaptors connected serially, the terminal adaptor further comprising:  
a memory storing communication data received by the communication  
circuit; and  
a communication section transferring the communication data stored in  
the memory to other terminals.